

ABSTARCT

Back ground:

Type 1 diabetes is a common endocrine disorder of childhood. Strict glycemic control has proven to improve the quality of life and prevent the long term complications.

Objectives:

- 1) To compare the flash glucose monitoring system + self monitoring of blood glucose with self monitoring of blood glucose alone in terms of glycemic control as assessed by reduction in HbA1c in adolescents with type 1 diabetes.
- 2) To identify the hypoglycemic events not identified with self monitoring of blood glucose alone.
- 3) To assess the correlation of FGMS interstitial glucose recordings with capillary recordings of glucometer.
- 4) To assess the feasibility and acceptability of FGMS

Materials and Methods:

Study was done in pediatric endocrinology department, Christian Medical College, Vellore during January 2017 till December 2017. A randomized controlled study was done with 10 patients in the intervention group and 11 patients in the control group. Both the groups performed SMBG once in every 2 weeks for 3-4 consecutive days. Intervention group were also made to do FGMS in addition to

SMBG for 3 times during the entire study period at 2 monthly intervals. FGMS is a novel method of continuous glucose monitoring system which measures glucose from interstitial fluid every 15minutes for 14 days.

Results and discussion

All the baseline parameters were identical between the groups and were comparable except for the age of patients and the age at time of diagnosis. Change in HbA1c from baseline to 6months was -0.25% and 1.5% in intervention group and control group respectively. While FGMS identified hypoglycemic recording in all the participants in intervention group, SMBG showed hypoglycemic recordings in only 3 participants. The mean difference between FGMS and SMBG glucose values was 14 ± 3.5 mg/dl. There were no serious adverse effects of FGMS noticed. All the participants in intervention group found FGMS feasible and acceptable.

Use of FGMS in improving glycemic control with reduction of HbA1c was not noted in our study. FGMS helps in identifying asymptomatic glycemic variations which affects the long term outcome of disease. FGMS sensor for 14days almost cost the same as SMBG if done daily.

Key Words- Type 1 diabetes mellitus, Glycemic control, Adolescents of 12-18 years, HbA1c, FGMS, SMBG, hypoglycemia.